

REVISIONS AND ADDITIONS
(As of 14 November 1962)

TO

(C) AEROSPACE FORCES BASED IN CUBA

S-25-62

1 November 1962

This document is classified _____ because
it reveals _____ evaluation of operational strengths
of aerospace forces based in Cuba including _____
information bearing on the subject.

WARNING

THIS DOCUMENT CONTAINS INFORMATION AFFECTING THE NATIONAL
DEFENSE OF THE UNITED STATES WITHIN THE MEANING OF THE
ESPIONAGE LAWS, TITLE 18 U.S.C., SECTIONS 793 AND 794.
ITS TRANSMISSION OR THE REVELATION OF ITS CONTENTS IN ANY
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Prepared by

for

ASSISTANT CHIEF OF STAFF/INTELLIGENCE
HEADQUARTERS UNITED STATES AIR FORCE

PEN AND INK REVISIONS

- Page v, Par 4, line 5: Change "56,000 feet with a 2 to 3 minute maneuver capability above 65,000 feet" to read - "50 to 55,000 feet with about 2 min. with no maneuver capability at 70,000 feet".
- Page v, Par 4, line 8: Change period after missiles to comma and add "and racks have been observed on fighters in Cuba".
- Page vi, Par 1, line 3: Change "15 months" to "13 months".
- Page vi, Par 1, line 12: Change "Minimum altitude capability may be as low as 1,000 to 3,000 feet under ideal radar siting conditions." to read - "Minimum altitude capability estimated to be about 3,000 feet."
- Page vi, Par 2, line 4: Change last sentence to read "All antiaircraft weapons are highly mobile and those known to be in Cuba provide some deterrent against aerial targets up to 15,000 feet."
- Page 7, Par 1, line 1: Change "43 Transports" to "45 transports."
- Page 7, Par 1, line 7: Change "55 helicopters" to "67 helicopters".
- Page 7, Par 1, line 8: Change "At least 38 of these are MI-4/HOUND, a growth of about 30" to "At least 50 of these are MI-4/HOUND, a growth of more than 40".
- Page 7, Par 1, line 11: After last sentence add "it is used for both ground support and liaison purposes".
- Page 9, Par 2, line 3: Change "56,000 ft with a 2-3 minute maneuver capability above 65,000 ft" to "50 to 55,000 ft with about 2 minutes with no maneuver capability at 70,000 feet".
- Page 9, Par 4, line 3: Change "speed of Mach 2 at about 36,000 feet." to "speed of about 1,000 knots at about 36,000 feet with Air to Air Missiles aboard."
- Page 9, Par 4, line 7: Change "145nm without tanks, 290nm with one external tank:" to "290nm without tanks, 380nm with one external tank:"
- Page 10, Par 6, line 4: Change "2,500 feet may be expected." to read - "2,500 feet may be expected under radar conditions."

Page 28, Par 2, line 3:

Change "may be as low as 1,000 to 3,000 feet under ideal radar siting conditions." to read - "estimated to be about 3,000 feet."

Page 30, Par E2, line 3:

Change "highly mobile and provide the Cubans with some deterrent against targets up to 45,000 feet." to read - "highly mobile and those known to be in Cuba provide some deterrent against aerial targets up to 15,000 feet."

PAGE CHANGES

ANNEX 1, Section F2, Page 25:	Remove page 25 and replace with page 25.
ANNEX 11, Table A:	Remove Table A, pages 37 and 38 and replace with Table A, pages 37 and 38.
ANNEX 11, Table D:	Remove Table D, pages 42 and 43 and replace with Table D, page 42.
ANNEX 11, Table E:	Remove Table E, page 44 and replace with Table E, page 43.
ANNEX 11, Table F:	Remove Table F, pages 45 thru 48 and replace with Table F, pages 44 thru 48.
ANNEX 11, Table G:	Remove Table G, page 49 and replace with Table G, page 49.
ANNEX 11, Table H:	Remove Table H, page 50 and replace with Table H, page 50.
ANNEX 11, Table I:	Remove Table I, page 51 and replace with Table I, page 51.
ANNEX 11, Table J:	Remove Table J, pages 52 and 53, replace with Table J, pages 52 thru 59.

ADDITIONS

ANNEX 1, Section F1, Page 23:	Add "Probable Operational Procedures at Cuban SS-4 MRBM Sites" pages 23a-b-c-d-e-f-g-h plus Figures 1-2-3-4.
ANNEX 1, Section 1, Page 32:	Add "Military Communications Links Between USSR and Cuba" page 32a.
ANNEX 11, Page 41:	Add "Explanations of Table Headings" page 41a.
ANNEX 11, Page 62:	Add Table M.

SUPPLEMENT TO ANNEX 1, SECTION F1

PROBABLE OPERATIONAL PROCEDURES AT CUBAN SS-4 MRBM SITES

- I INTRODUCTION
- II OPERATIONAL SEQUENCE AT CUBAN SS-4 SITES
 - A. San Cristobal Site #1
 - B. Probable Operational Sequence
- III READINESS POSTURE
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 - B. Posture 3
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 - E. Possible Alternate Posture
- IV LIST OF FIGURES
 - FIGURE 1 - SAN CRISTOBAL SITE NO. 1
 - FIGURE 2 - SAN CRISTOBAL SITE NO. 1 - TYPICAL LAUNCH
 - FIGURE 3 - SAN CRISTOBAL SITE NO. 1 - CENTRAL PROPELLANT & PARKING AREA
 - FIGURE 4 - SAN CRISTOBAL SITE NO. 1 - WARHEAD AND NOSECONE CHECK-OUT,
MATING AND HOLDING BUILDING

I. INTRODUCTION

Although the Soviets have now removed the SS-4 missile system from Cuba, valuable information can be derived from an analysis of the photography on these sites when they were in an operational status. Such analysis reveals probable operational procedures and flow of missiles through the various components of the site configuration and the most probable basic readiness posture for the site. Additionally, the information gained from this analysis provides important data for understanding more fully the operational procedures and techniques employed at MRBM sites in the Soviet Union.

San Cristobal Site #1 has been selected to illustrate the operational flow since it appears to be typical of field type configurations.

II OPERATIONAL SEQUENCE AT CUBAN SS-4 SITES

A. SAN CRISTOBAL SITE #1

The site (See Fig 1) is composed of 4 launch areas. Behind each launch position is located one or more ready tents equipped for missile checkout. Located in the immediate launch area are five van type vehicles believed used in the final electrical and pressure checks. - See Fig 1 and Fig 3.

A central propellant parking area is located to the rear of the four launch positions. Within this area are 16 oxidizer trailers and 8 fuel trailers. See Figs 1 and 3.

Approximately $\frac{1}{2}$ mile to the rear of the launch area is an arched roofed concrete drive thru structure (to be earth mounded) which probably serves as assembly, checkout and storage for nose cones and warheads. Fig 1 and 4.

B. PROBABLE OPERATIONAL SEQUENCE

The following is a description of the sequence of operations as the missile progresses thru the components of site preparatory to launch:

1. The warhead and nose cone assembly are transported by truck directly to the arched roofed structure for checkout, mating with re-entry vehicle, and holding until scheduled for mating to the missile.
2. The missile on transporter arrives at the on site central unloading area - and here it is held until scheduled for checkout in the final ready building. -- This event is concurrent with 1.
3. The erector which is separate from the transporter is brought on site and is placed in position. Initially it may be located in a temporary position, then later on a concrete pad. -- The launch platform is emplaced. This operation is also concurrent with 1 and 2 above.
4. The missile on transporter is brought up from the on site central storage to the final ready building - the nose cone with warhead installed is moved from arched roofed building to the final ready building for mating with the missile. A temporary assembly and storage facility for nose cones may be required until the arched roofed building is completed -- evidence has not revealed this temporary storage, however, closely guarded van trucks could be used.

5. After this mating the missile is moved from the ready building to the erector. The five modular vans which are in the immediate launch area move to the missile for final checks of the electrical circuits, pressure systems and guidance. These checks will be initiated while the missile is in the horizontal position on its transporter. Power is supplied for this operation by diesel type generators at the launch position. See Figs 1, 2 and 3. Four trucks noted in the central fuel storage area are probably spare generators. See Figs 1 and 3.

6. The missile is erected so that fittings on the missile are compatible with the connections and fittings on the launch pad platform - and guidance ring. The final guidance adjustments are made before and while fueling is being accomplished. Theodolites are observed in the immediate area approximately 100 feet away - one per launcher.

7. Fueling occurs with the missile in the erected state. Two oxidizer trucks with probably red fuming nitric acid and one fuel truck with amine type fuel move in from the on site central fuel parking area (see Fig 1 and 4) to perform this function. High speed fueling techniques are probably employed and would require from 5 to 10 minutes only.

8. Modular vehicles, fuel trucks, other mobile equipment and personnel are removed from the area before launch occurs.

9. While the foregoing operations are underway the refire missile has been moving through the sequence and should be ready for final checkout, step 4 above.

III READINESS POSTURE

The SS-4 MRBM system is apparently completely road transportable. The field modular sites in Cuba appeared to be operational by 23 October 1962. Analysis of the site layout and facilities provides insight into their probable reaction capability.

Four readiness postures will be applied to these sites and an estimate made as to the minimum time required by the site to proceed from each posture

to launch. For the purpose of this discussion these readiness postures will be designated as Posture 4, Posture 3, Posture 2 and Posture 1.

A. READINESS POSTURE 4 - DESCRIPTION

Non alert status.

Launch crews not on alert. Nose cone and missile checked but not mated. Missile guidance system not adjusted for particular target and missile not erected for fueling.

It is believed that the above posture represents a condition in which equipment, missiles, and personnel are not in alert status. It is, therefore, assumed that a readiness state more advanced than Posture 4 would be maintained during periods of tension.

B. READINESS POSTURE 3 - DESCRIPTION

1. Missile in ready tent near launch position.
2. Nose cone assembly including guidance, and warhead are mated to the missile and checked.
3. Horizontal checkout of electrical circuits and pressure systems have been completed.

Missiles were not identified at the launch platform of any site. However, missiles on transporters were observed parked in an area adjacent to the ready tents. This tends to indicate that the missiles are checked out in the ready building. The two missiles observed outside the ready tents at San Cristobal #1 probably were awaiting checkout or had been thru the horizontal checkout cycle and moved out of the ready tent to provide room for checkout of the refire missile. See Fig. 3. It is estimated therefore that the SS-4 field sites were probably in Posture 3 at that time. (In absence of evidence on the location of nose cone/warhead assembly, the estimate of Posture 3 was based on the assumption that the re-entry vehicle had been mated to the missile and all horizontal checks completed).

The additional procedures or steps required to move the missile from Posture 3 to launch are outlined below in sequence with estimated minimum time for each step:

STEP 1 - MOVEMENT OF MISSILE FROM READY TENT TO ERECTOR

The distance involved in this move is only several hundred feet. However, the missile transporter must be backed and maneuvered into exact position so that couplings on the erector, transporter and pad platform are compatible for fastening.

TIME: 10 Minutes.

STEP 2 - ERECTION OF THE MISSILE

After the transporter, erector and pad platform are properly aligned, coupling of these units is accomplished and the missile is adjusted and secured for erection. The missile is then raised to the vertical position by an erector arm probably utilizing an electro hydraulic winch. For this operation the missile must be positioned so that when erected fittings and connections are compatible. The missile is positioned, leveled, and stabilized on the launch platform by guy wires. Precise positioning and orientation of the missile on the platform to its basic firing azimuth is required.

TIME: 30 Minutes (Minimum)

STEP 3 - FUELING

Propellant loading is accomplished with the missile in the erected state - two oxidizer trucks (approximate capacity 4500 gal.) utilizing red fuming nitric acid and one fuel truck, (approximate capacity 4500 gal.), probably with amine perform this operation in from 5 to 10 minutes - this time is compatible with collateral information on Soviet MRBMs. Fueling time is accomplished concurrent with final adjustments and does not prolong reaction time.

TIME: 5-10 Minutes.

STEP 4 - FINAL ADJUSTMENTS

Critical checks and final adjustments are accomplished concurrent with fueling. These checks probably include a final recheck by modular equipment of certain critical circuits. Final adjustment of internal guidance components such as the gyro -- and adjustment of the platform ring and theodolite are also required. The 15 minutes allotted for these final adjustments is also

compatible with collateral data and technical estimates based on U. S. analysis and analog.

TIME: 15 Minutes.

REMOVAL OF EQUIPMENT

Upon completion of final adjustments the mobile launch serving equipment and personnel are removed from the immediate launch area. TIME: 5 Minutes. POSTURE 3 REACTION TIME: 60 Minutes. This estimate represents absolute minimum time assuming a flawless operation.

The advantage of Posture 3 is the missile is under environmental cover and in a relatively advanced alert state. It can be sustained at this readiness stage for longer periods than is possible at more advanced readiness postures since the missile and at least part of the monitoring equipment would be protected from the elements.

C. POSTURE 2 - DESCRIPTION

1. Missile at launch point in erected position.
2. Initial guidance calibration checks have been accomplished - and all checks normally made in horizontal position have been completed.
3. Missile is not fueled.

The principal difference between Posture 3 and 2 is that in Posture 2 the missile has been erected and all critical checks completed except fuel load and final guidance - the 5 to 10 minutes allotted for propellant loading is the principal time consumed in launching from this posture. Final guidance rechecks are probably accomplished concurrent with the propellant loading. Reaction time from Posture 2 is estimated to be approximately 20 to 25 minutes minimum. This posture can be sustained for prolonged periods provided continual checks of the guidance calibration and critical circuits are maintained.

D. POSTURE 1 - FUELED READY

It is possible that the Cuban sites could have assumed a fueled ready posture. Such a posture is feasible since the SS-4 system is estimated to use storable propellants. This posture possibly can be sustained for several weeks provided continued checks of the guidance and critical circuits are maintained. The limiting factors being unfavorable weather conditions and deterioration of

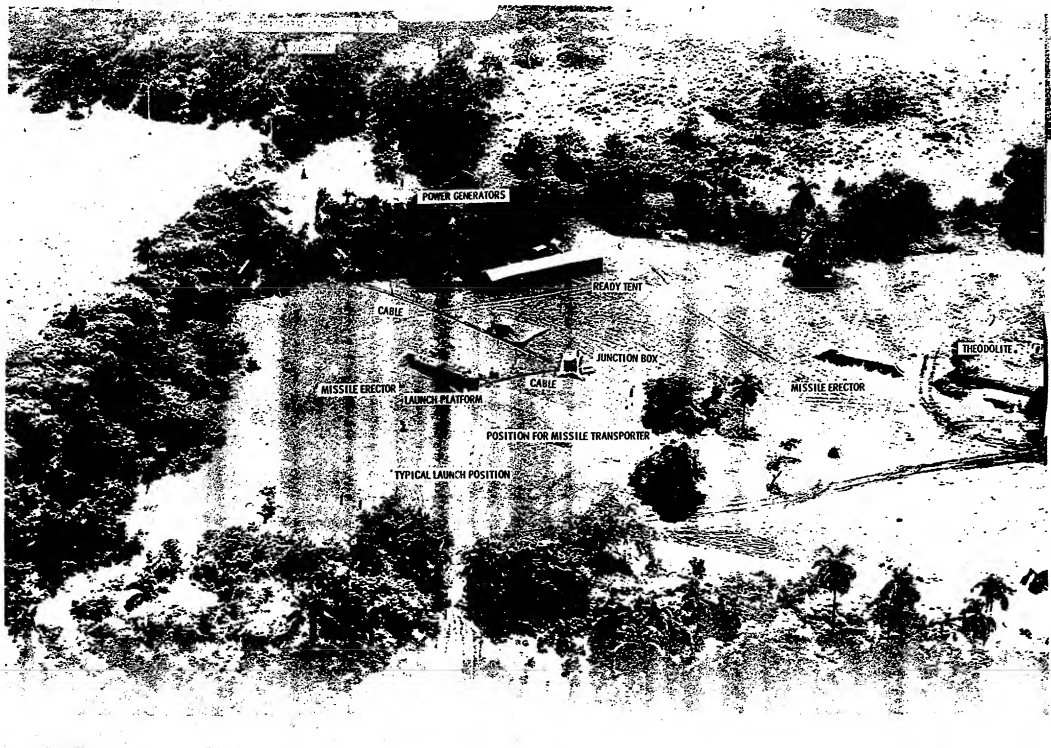
critical circuits. the use of environmental cover at the pad including wind breaks would enhance the ability to hold this posture - no such protection was ever noted at the Cuban sites. Reaction time from fueled ready is estimated to be 5 to 10 minutes.

E. POSSIBLE ALTERNATE POSTURE

The following description is of an alternate posture which conceivably could have been assumed in time by the Cuban MRBM sites.

1. Missile at launch point in horizontal position.
2. Nose cone assembly including guidance and warhead are mated to the missile and checked.
3. Horizontal checkout of electrical circuits and pressure systems have been completed.

The principal difference between this alternate Posture and Posture 3 is that the missile is held at the launch pad in horizontal checked out position rather than in the ready building. This posture would cut reaction time in that time required to move to the launch pad and maneuver into position and fasten couplings for erection is eliminated. It also may reduce the number of final re-checks or adjustments. Since the missile is not moved, delicate circuits are less likely to be damaged. The principal advantage of this posture would be quicker reaction. The disadvantages being inability to sustain readiness for prolonged periods. However, if the missile were held in horizontal checked out posture under environmental cover at the launch position this disadvantage would be eliminated. Evidence on the Cuban sites however, does not support this readiness condition. Reaction time from this possible alternate posture would be approximately 45 minutes.



POWER GENERATORS

READY TENT

CABLE

JUNCTION BOX

MISSILE EJECTOR

LAUNCH PLATFORM

CABLE

MISSILE EJECTOR

THEODOLITE

POSITION FOR MISSILE TRANSPORTER

TYPICAL LAUNCH POSITION

FIGURE 1



TENT AREA

OXIDIZER TRAILERS

CENTRAL PROPELLANT PARKING AREA

FUEL TRAILERS

READY TENT

ERECTOR

5 CHECK-OUT VANS

READY TENT

JUNCTION BOX

CABLE

THEORY

ON FOR ALL TRAILERS

ERECTOR



READY BUILDING

FUEL TRAILERS

CENTRAL PROPELLANT PARKING AREA

OIL TRAILERS

SPARE GENERATORS

COASTAL DEFENSE CRUISE MISSILE SITES

Photography subsequent to 29 October 1962 indicates the SSCM launchers are connected by cable with a probable WHIFF-type tracking radar, as well as other electronic vans. All four sites appear to be "field" type installations rather than permanent facilities.

Campo Florida is now considered a possible rather than a firm SSCM site.

A new cruise missile site has been identified in the vicinity of La Sierra near the port of Cienfuegos. The site appears to be operational and contains the same essential elements as those found at the Banes site.

c. State of Training

No information is available as to crew training status. It is assumed that all SSCM sites are manned at least in part by Soviet "advisers" who have received operational training in the USSR, and further, that they will provide OJT to assigned Cuban personnel.

d. Order of Battle Table

Current order of battle data for coastal defense SSCM's is presented in the following table:

<u>NAME</u>	<u>NO. LAUNCHERS</u>	<u>NO. MISSILES^{2/}</u>
La Sierra	2	6-6
Banes	2	6-8
Siguanea	2	6-8
Santa Cruz del Norte	2	6-8
Campo Florida ^{1/}	2	6-8
TOTALS	10	30-40

^{1/} Possible

^{2/} Missile estimate based on numbers of missiles transporters sighted at launch sites

Page Not Available

SUPPLEMENT TO ANNEX 1 SECTION 1

MILITARY COMMUNICATIONS LINKS BETWEEN USSR AND CUBA

On 23-24 October 1962, two new communications links (Link "A" and Link "B") between the USSR and Cuba appeared, but precise locations of the stations have not been determined. These initially used Manual Morse. The first intercept of a radioprinter scrambler appeared on 23 October; scrambler was first intercepted on 28 October. Link "A" appears primarily to have naval associations; Link "B", naval associations. Frequencies noted include 17,544 KC's and 18,500 KC's. Both links have continued active through at least 7 November. Traffic flow is fairly evenly divided between the USSR and Cuba. Use of scrambler has continued to increase, after initial difficulties in setting up the links had apparently been overcome (radio propagation difficulties hindered subsequent use of links during the early days of usage of these links).

Initial use of Soviet radiotelephone communications on a Soviet-Cuban link (Link "B") was observed on 2 November.

The Kudma VLF Broadcast facility (callsign UKY) is operating in support of Links "A" and "B". On 4 November, the same message was passed on Links "A" and "B" and on the Kudma VLF Broadcast.

No evidence has come to light to date to support the theory that the Kudma VLF facility could or did actually support the Soviet missile forces in Cuba. The same is true regarding Links "A" and "B", as well as the Soviet Strategic Rocket Troops' HQ Broadcast facility (with diverse frequencies) from Moscow which is believed to have the capability to support deployed missile units throughout the world. Both facilities, however, are strong candidates for such a function.

The two new links appearing on 23 & 24 October, as supplemented by their scrambler facilities, would have met the requirements of the deployed offensive missile units in Cuba for a communications system which is both very secure and capable of handling large volumes of traffic.

SAN CRISTOBAL ISLAND SITE NO. 41

FIGURE 1

READY BUILDING

FUEL TRAILERS

CENTRAL PROPELLANT PARKING AREA

OXIDIZER TRAILERS

SPARE GENERATORS



SAN CRISTOBAL LAUNCH SITE NO. #1

FIGURE 4

WARHEAD AND NOSECONE CHECKOUT, MATING AND HOLDING BUILDING



TABLE A

NICKNAME/ SOV DESIGNATION	DESIGN ROLE	MAX SPEED AT ALT	RADIUS, OPT MISSION	2/ AI RADAR	3/ IR SIGHT	4/ AAM	COMBAT CEILING	7/ TACTICAL ARMAMENT
FAGOT MIG-15	Day Ftr	.92/35,332	5/ 575	No	No	No	51,000	1 x 37mm gun 2 x 23 mm guns 2 x 550lb bombs
FRESCO B MIG-17	Day Ftr	.95/36,089	5/ 540	Range Only in some	Yes	Po IR	53,400	1 External Tank 1 x 37mm gun 2 x 23mm guns 1 x 100lb bomb Internal Tank 1 x 37mm gun 2 x 23mm guns 2 x 550lb bombs
FRESCO C MIG-17	Day Ftr	.97/36,089	5/ 510	Range Only in some	Yes	Po IR	54,500	1 x 37mm gun 2 x 23mm guns 4 x IR Missiles 2 x 550lb bombs
FRESCO D MIG-17	A/W Ftr	.97/36,089	5/ 510	SCAN ODD 5/3 (Manual)	Yes	IR/BR	54,500	3 x 23mm guns 4 x IR Missiles or 4 Semiactive homing missiles or 4 BR missiles
FARMER A MIG-19	Day Ftr	1.27/32,800	5/ 520	Range Only SCAN FIX	Yes	Po IR	54,600	External Fuel : 1 x 37mm gun 2 x 23mm guns 2 x 210mm rockets Internal Only 1 x 37mm gun 2 x 23mm guns 2 x 550lb bombs

NICKNAME/ SOV DESIGNATION	DESIGN ROLE	MAX SPEED ALT	RADIUS OPT MISSION	2/ AI RADAR	3/ IR SIGHT	4/ AAM	COMBAT CEILING	7/ TACTICAL ARMAMENT
FISHBED C MIG-21	Day Ftr	1.75/36,089	5/ 380	Range Only HIGH FIX	Yes	IR	50,900	Internal Fuel 2 x 30mm guns 1-1100 lb bomb 1 Ext Fus.Tank 2 x 30mm guns 18-19 x 55mm rockets
BEAGLE IL-28	Jet Lt Bmr	440/35,000	6/ 590	No	No	No	44,300	2 x 23mm guns in tail turret 2 x 23mm fixed forward firr in nose of fuselage 6600# bomb load without external fuel 4400# with 440 gal external fuel

NOTES

- 1/ Figures for optimum area intercept mission.
- 2/ Figures represent search/track range in nautical miles.
- 3/ IR sight gives azimuth info only.
- 4/ IR - infrared homing; BR - beam rider.
- 5/ With external fuel tanks.
- 6/ Without tip tanks; with tip tanks - 740.
- 7/ Performance figures in other columns do not apply when tac armament employed for ground support.

EXPLANATION OF TABLE HEADINGS

A standard format has been used throughout the tables. The left side of the page contains reference information. The columns, in the order in which the codes appear are:

(military districts), CN (Country), and AD (air defense district), and geographic coordinate column. The remaining codes are:

C Security classification*
DESIG Identifying designation*
C Security Classification*
E Evaluation

Measure of assurance in the intelligence presented:

F Firm
P Probable

NA/LO/UNIT/EQUIP/REMARKS

Where applicable, in the order listed: name, location, unit, equipment, remarks

E Evaluation

Measure of assurance in the intelligence presented:

F Firm
P Probable

STR Strength Code

This column lists strength by model.

C Security Classification*

CAPAB Runway and capability code

On airfields, the number stands for runway length, i.e., 082 translates to 8,200-foot runway. The letter following this number is the runway surface code:

A Concrete
B Asphalt or bitumen-bound macadam

The capability code is opposite and to the right of equipment:

A Nuclear weapon (AE)

Line Line control number

Each line of a table is numbered for the purpose of effecting changes between issues. Additions will be handled by a number plus a letter.

*"C" stands for Collateral. Items so designated may be extracted provided SECRET classification is used. It is planned to have a security classification on all items.

TABLE D

CUBAN MILITARY AIR TRANSPORT STRENGTH

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/UNIT	EQUIPMENT/REMARKS	E	STZ	C	CAPAB	LINE
CU	19-58-10N	077-50-10W		C	F			ANTONIO MACEO					070 B	1
CU				C	F			- CRATE		F	002			2
								U/I						
CU	21-25-13N	077-50-50W		C	F			CANAGUEY INTERNATIONAL					080 B	3
CU				C	F			- CRATE		F	002			4
								U/I						
CU	22-29-40N	079-56-15W		C	F			CANILLO CIENFUEGOS					100 B	5
CU				C	F			- CRATE		F	001			6
								U/I						
CU	22-59-35N	082-24-12W		C	F			JOSE MARTI INTERNATIONAL					042 A	7
CU				C	F			CRATE		F	001			8
CU				C	F			COLT		P	007			9
CU				C	F			C-45		F	001			10
CU				C	F			C-46		F	002			11
CU				C	F			C-47		F	002			12
CU				C	F			C-54		F	002			13
CU				C	F			C-121		F	001			14
CU								1ST TRANS REGT						
CU				C	F			BRITANNIA		F	001			15
CU	23-05-35N	082-26-10W		C	F			CAMPO LIBERTAD					067 B	16
CU				C	F			S C-45		F	001			17
								U/I						
CU				C	F			VENTURA		F	001			18
CU				C	F			COLT		F	001			19
CU	22-56-16N	082-30-34W		C	F			SAN ANTONIO DE LOS BANOS					084A	20
CU				C	F			S CRATE		F	001			21
								U/I						
CU				C	F			C-47		F	002			22
CU	23-02-04N	082-31-41W		C	F			PLAYA BARACOA					058 B	23
CU				C	F			R HOUND		P	050			24
								U/I						
CU				C	F			HARE		P	017			25
CU								POSS SON ET						

TABLE E

CUBAN REVOLUTIONARY AIR FORCE
AIRCRAFT ORDER OF BATTLE

MD	CN	AD	COORDINATES	C	DESIG	C	E	NA/LO/UNIT/EQUIP/REMARKS	E	STR	C	CAPAB	LINE
	CU							H SAN ANTONIO DE LOS BANOS					1
	CU							D SAN ANTONIO DE LOS BANOS					2
	CU							FTR DIV HQ					3
	CU	22-53-//N	082-32-//W					SAN ANTONIO DE LOS BANOS			088	A	4
	CU			C	F			R FAGOT/FRESCO	F	018			5
	CU			C	P			FRESCO D	P	004			6
	CU			C	F			FARMER	F	008			7
	CU			C	F			FISHBED	F	009			8
	CU							POSS FEW FARMER B					9
	CU	22-31-//N	079-55-//W					CAMILO CIENFUEGOS			085	B	10
	CU			C	F			R FAGOT/FRESCO	F	010			11
	CU			C	F			R FISHBED C	F	030			12
	CU	21-25-//N	077-51-//W					CAMAGUEY			080	B	13
	CU			C	F			S FAGOT/FRESCO	F	012			14
	CU	20-47-37N	076-18-20W					HOLGUIN			088	B	15
	CU							FAGOT/FRESCO	F	006			16
	CU	22-53-//N	082-32-//W					SAN ANTONIO DE LOS BANOS			088	A	17
	CU			C	F			S INVADER (8-26)	F	012			18
	CU							NOT ALL ARE OPERATIONAL					19
	CU	22-05-40N	084-09-07W					SAN JULIAN			070	B	20
	CU			C	P			BEAGLE	P	033			21
	CU							TAC STRIKE/RECON: 7 FULLY					22
	CU							ASSEMBLED; 6 IN VARIOUS					23
	CU							STAGES OF ASSEMBLY					24
	CU	20-47-37N	076-18-20W					HOLGUIN			088	B	25
	CU							BEAGLE	P	009			26
	CU							TAC STRIKE/RECON: ALL					27
	CU							IN CRATES					28

TABLE F

CUBAN RADAR ORDER OF BATTLE
(EARLY WARNING/GROUND CONTROL INTERCEPT)

MD	CN	AD COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
CU	22-50-//N	082-35-//W					ALQUIZAR					1
CU							TOKEN	1				2
CU							EW					3
CU	21-18-//N	078-30-//W					ALTAMIRA					4
CU							TOKEN	1				5
CU							EW/GCI					6
CU	20-35-//N	076-00-//W					ALTO CEDRO					7
CU							SR-3A	1				8
CU							EW					9
CU	22-50-//N	082-45-//W					ARTEMISA					10
CU							TOKEN	1				11
CU							EW/GCI					12
CU	21-05-//N	075-55-//W					BANES					13
CU							KNIFE REST A	1				14
CU							BFCN	1				15
							BARLOCK	1				16
							FLATFACE	1				17
							SPOON REST	1				18
							GCI					19
CU	20-06-//N	075-20-//W					CABANAS					20
							TOKEN	1				21
							ROCK CAKE	1				22
							SPOON REST	1				23
							GCI					24
CU	21-50-//N	084-53-//W					CABO SAN ANTONIO					25
							KSA	1				26
							EW					27
	22-28-//N	079-30-//W					CAIBARIEN					28
							KNIFE REST A	1				29
							STONE CAKE	1				30
							BAR LOCK	1				31
							SPOON REST	1				32
							EW					33
	22-43-//N	082-26-//W					CAMACHO					34
							TOKEN	1				35
							WOOD GAGE	1				36
							EW/GCI					37

CUBAN RADAR ORDER OF BATTLE
(EARLY WARNING/GROUND CONTROL INTERCEPT) (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
	CU		21-21-//N 077-51-//W					CAMAGUEY					38
	CU							TOKEN		1			39
	CU							BAR LOCK		1			40
	CU							ROCK CAKE		1			41
	CU							STONE CAKE		1			42
	CU							GCI					43
	CU		22-13-//N 078-53-//W					CHAMBAS					44
	CU							TOKEN		1			45
	CU							BFCN		1			46
	CU							SPOON REST		1			47
	CU							KNIFE REST A		1			48
	CU							STONE CAKE		1			49
	CU							GCI					50
	CU		22-14-//N 080-18-//W					CIENFUEGOS					51
	CU							TOKEN		1			52
	CU												53
	CU							STONE CAKE		1			54
	CU							BAR LOCK		1			55
	CU							FLAT FACE		1			56
	CU							GCI					57
	CU		19-57-//N 075-53-//W					SANTIAGO EL CUBA					58
	CU							BFCN		1			59
	CU							MC					60
	CU		21-55-//N 078-13//W					ESMERALDA					61
	CU							BFCN		1			62
	CU							KNIFE REST A		1			63
	CU							BAR LOCK		1			64
	CU							STONE CAKE		1			65
	CU							GCI					66
	CU		22-26-//N 080-05-//W					ESPERANZA					67
	CU							CR-106		1			68
	CU							EW					69
	CU		22-55-//N 081-26-//W					GUAMACARO					70
	CU							TOKEN		2			71
	CU							BAR LOCK		1			72
	CU							KNIFE REST A		1			73
	CU							FISH NET		1			74
	CU							GCI					75

CUBAN RADAR ORDER OF BATTLE
(EARLY WARNING/GROUND CONTROL INTERCEPT) (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
	CU		22-57-//N 082-43-//W					GUANAJAY					76
	CU							TOKEN		1			77
	CU							EW/GCI					78
	CU		22-05-//N 084-08-//W					GUANE					79
	CU							KNIFE REST A		1			80
	CU							STONE CAKE		1			81
	CU							BAR LOCK		1			82
	CU							GCI					83
	CU		22-43-//N 082-37-//W					GUANINAR					84
	CU							TOKEN		1			85
	CU							EW/GCI					86
	CU		23-03-//N 082-37-//W					HAVANA					87
	CU							FIRE CAN		1			88
	CU							TOKEN		1			89
	CU							BAR LOCK		1			90
	CU							ROCK CAKE		1			91
	CU							GCI					92
	CU		23-08-//N 082-17-//W					HAVANA					93
	CU							KNIFE REST A		1			94
	CU							FLAT FACE		1			95
	CU							SPOON REST		1			96
	CU							EW					97
	CU		22-18-//N 083-32-//W					LA COLOMA					98
	CU							KNIFE REST A		1			99
	CU							EW					100
	CU		23-07-//N 081-38-//W					MATANZAS					101
	CU							TOKEN		1			102
	CU							FLAT FACE		1			103
	CU							KNIFE REST A		1			104
	CU							STONE CAKE		1			105
	CU							BAR LOCK		1			106
	CU							GCI					107
	CU		22-51-//N 083-25-//W					NIAGARA					108
	CU							TOKEN		1			109
	CU							FLAT FACE		1			110
	CU							GCI					111
	CU		22-22-//N 079-46-//W					PLACETAS					112
	CU							TOKEN		1			113
	CU							EW/GCI					113A

CUBAN RADAR ORDER OF BATTLE
(EARLY WARNING/GROUND CONTROL INTERCEPT) (CONT'D)

MD	CN	AD COORDINATES	C DESIG	C E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
	CU	22-50-//N 080-05-//W			SAGUA LA GRANDE					114
	CU				TOKEN	1				115
	CU				BAR LOCK	1				116
	CU				KNIFE REST A	1				117
	CU				STONE CAKE	1				118
	CU				ROCK CAKE	1				119
	CU				FISH NET	1				120
	CU				SPOON REST	1				121
	CU				FLAT FACE	1				122
	CU				GCI					123
	CU	22-51-//N 082-31-//W			SAN ANTONIO DE LOS BANOS					124
	CU				TOKEN	1				125
	CU				FIRE CAN	1				126
	CU				RATHGON	1				127
	CU				EW					128
	CU	22-58-//N 082-19-//W			SAN ANTONIO VEGAS					129
	CU				TOKEN	1				130
	CU				FIRE CAN	1				131
	CU				GCI					132
	CU	22-33-//N 079-41-//W			SAN ANTONIO VUELTAS					133
	CU				TOKEN	1				134
	CU				EW/GCI					135
	CU	22-57-//N 082-06-//W			SAN JOESE DE LAJAS					136
	CU				TOKEN	1				137
	CU				FIRE CAN	1				138
	CU				EW/GCI					139
	CU	22-29-//N 079-57-//W			SANTA CLARA					140
	CU				TOKEN	1				141
	CU				BAR LOCK	1				142
	CU				KNIFE REST A	1				143
	CU				FIRE CAN	1				144
	CU				CHEESE BRICK	1				145
	CU				STONE CAKE	1				146
	CU				GCI					147
	CU	20-05-//N 075-00-//W			SANTIAGO DE CUBA					148
	CU				TOKEN	1				149
	CU				FIRE CAN	1				150
	CU				EW					150A

CUBAN RADAR ORDER OF BATTLE
(EARLY WARNING/GROUND CONTROL INTERCEPT) (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
	CU		21-36-//N 077-33-//W					SENADO					151
	CU							BFCN		1			152
	CU							SPOON REST		1			153
	CU							KNIFE REST A		1			154
	CU							MC					155
	CU		21-52-//N 078-44-//W					ZANJA					156
	CU							BAR LOCK		1			157
	CU							SPOON REST		1			158
	CU							FLAT FACE		1			159
	CU							GCI					160

TABLE G

SOVIET MRBM/IRBM MISSILE ORDER OF BATTLE IN CUBA

MD CN	AD COORDINATES	C DESIG C E	NAME/EQUIPMENT/REMARKS	E STR C	CAPAB LINE
CU	22-39-08N 079-52-00W		SAGUA LA GRANDE, NO. 1, MRBM (SS-4)	0	1 2
CU	22-43-44N 080-01-40W		SAGUA LA GRANDE, NO. 2, MRBM (SS-4)	0	3 4
CU	22-40-05N 083-17-55W		SAN CRISTOBAL, NO. 1, MRBM (SS-4)	0	5 6
CU	22-40-50N 083-15-00W		SAN CRISTOBAL, NO. 2, MRBM (SS-4)	0	7 8
CU	22-42-40N 083-08-15W		SAN CRISTOBAL, NO. 3, MRBM (SS-4)	0	9 10
CU	22-46-55N 082-58-50W		SAN CRISTOBAL, NO. 4, MRBM (SS-4)	0	11 12
CU	22-56-50N 082-39-20W		GUANAJAY, NO. 1, IRBM (SS-5)	0	13 14
CU	22-57-20N 082-37-05W		GUANAJAY, NO. 2, IRBM (SS-5)	0	15 16
CU	22-25-00N 079-35-00W		REMEDIOS, IRBM (SS-5)	0	17 18 19 20

Note: ALL SITES HAVE BEEN DISMANTLED.

TABLE H

CUBAN SURFACE-TO-AIR MISSILE SITES (SA-2)

MD	CN	AD	COORDINATES	C DESIG	C E	NAME	E STR	C	CAPAB	LINE
CU	22-57-32N	083-17-28W				BAHIA HONDA	6			1
CU	20-06-20N	075-20-15W				CABANAS	6			2
CU	22-28-23N	079-29-40W				CAIBARIEN	6			3
CU	22-13-20N	078-53-30W				CHAMBAS	6			4
CU	21-07-20N	076-26-20W				CHAPARRA	6			5
CU	21-42-13N	078-50-21W				CIEGO DE AVILA	6			6
CU	22-02-50N	080-24-20W				CIENFUEGOS	6			7
CU	22-59-31N	080-45-47W				DELEITE	6			8
CU	21-55-48N	078-13-18W				ESMERALDA	6			9
CU	23-09-25N	082-13-32W				HABANA	6			10
CU	20-21-00N	076-20-00W				JIGUANI	6			11
CU	22-18-42N	083-32-35W				LA COLOMA	6			12
CU	21-00-40N	075-41-43W				LOS ANGELES	6			13
CU	21-13-45N	077-02-15W				MANATI	6			14
CU	20-18-20N	077-06-08W				MANZANILLO	6			15
CU	23-00-55N	082-49-30W				MARIEL	6			16
CU	23-01-50N	081-29-14W				MATANZAS	6			17
CU	22-51-10N	080-05-50W				SAGUA LA GRANDE	6			18
CU	22-05-28N	084-08-58W				SAN JULIAN AF	6			19
CU	21-47-45N	079-29-30W				SANCTI SPIRITUS	6			20
CU	22-41-05N	083-55-45W				SANTA LUCIA	6			21
CU	19-59-20N	075-50-58W				SANTIAGO DE CUBA	6			22
CU	21-36-30N	077-33-31W				SENADO	6			23
CU	21-37-33N	082-57-33W				SIGUANEA	6			24

TABLE I

CUBAN SURFACE-TO-AIR MISSILE SERVICE AND SUPPORT FACILITIES

MD CN	AD COORDINATES	C DESIG C E	NAME	E STR C CAPAB LINE
CU	21-51-50N 078-44-01W		CIEGO DE AVILA	1
CU	22-36-05N 080-05-10W		CIFUENTES	2
CU	20-18-//N 077-06-//W		MANZANILLO	3
CU	22-21-00N 083-39-00W		PINAR DEL RIO	4
CU	21-47-//N 079-29-//W		SANCTI SPIRITUS	5
CU	20-03-10N 075-53-20W		SANTIAGO DE CUBA	6
CU	22-57-40N 082-21-30W		SANTIAGO DE LAS VEGAS	7
CU	21-04-40N 077-00-00W		VICTORIA DE LAS TUNAS	8

TABLE J

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
CU	20-51-//N	075-45-//W						ANTILLA					1
								AAA EMPLACEMENT,					2
								STATUS UNKNOWN					3
CU	22-04-//N	080-19-//W						ARIMAO					4
								QUAD (4 BARREL AA					5
								MACHINE GUN)					6
CU	22-50-39N	082-48-20W						ARTEMISA					7
								9 AAA EMPLACEMENTS,					8
								STATUS UNKNOWN					9
CU	20-55-0/N	075-42-0/W						BANES					10
								37-MM AAA		6			11
CU	22-59-//N	082-32-//W						BAUTA					12
								QUAD (4 BARREL AA		6			13
								MACHINE GUN)					14
CU	22-57-//N	082-36-//W						CAIMITO DE GUAYABAL					15
								AAA EMPLACEMENT,					16
								STATUS UNKNOWN					17
CU	21-25-0/N	077-51-0/W						CAMAGUEY					18
								QUAD (4 BARREL AA		8			19
								MACHINE GUN)					20
								37-MM AAA					21
CU	23-07-//N	082-07-//W						CAMPO FLORIDO					22
								QUAD (4 BARREL AA		6			23
								MACHINE GUNS)					24
CU	23-02-//N	081-13-//W						CARDENAS NO. 1					25
								QUAD (4 BARREL AA		6			26
								MACHINE GUNS)					27
CU	23-02-//N	081-13-//W						CARDENAS NO. 2					28
								QUAD (4 BARREL AA		6			29
								MACHINE GUNS)					30
CU	23-09-//N	082-23-//W						CASA BLANCA					31
								37-MM		6			32
								QUAD (4 BARREL AA		6			33
								MACHINE GUN)					34
CU	22-58-0/N	081-43-0/W						CEIBA MOCHA					35
								QUAD (4 BARREL AA					36
								MACHINE GUN)					37

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
CU	21-09-0	N	076-28-0/W					CHAPARRA (DEF TREJAR)					38
								37-MM AAA	6				39
CU	22-09-//N		080-27-//W					CIENFUEGOS					40
								30-MM	12				41
								TWIN AAA					42
								QUAD (4 BARREL AA	36				43
								MACHINE GUNS)					44
CU	22-09-0/N		080-27-0/W					CIENFUEGOS					45
								30-MM TWIN AAA	4				46
CU	23-10-10N		082-17-15W					COJIMAR NO. 1					47
								LIGHT AAA	7				48
								(CALIBER UNKNOWN,					49
								57-MM OR LESS)					50
CU	23-09-20N		082-17-30W					COJIMAR NO. 2					51
								AAA EMPLACEMENT,					52
								UNOCCUPIED					53
CU	20-11-//N		075-48-//W					DOS CAMINOS					54
								QUAD (4 BARREL AA	6				55
								MACHINE GUNS)					56
CU	20-05-0/11		075-47-0/W					EL CANEY (DEF DOS BOSCAS)					57
								QUAD (4 BARREL AA	6				58
								MACHINE GUNS)					59
CU	23-07-0/N		082-15-0/W					GUANABACCA					60
								AAA EMPLACEMENT,					61
								STATUS UNKNOWN					62
CU	20-02-20N		075-04-35W					GUANTANAMO NO. 1					63
								3 AAA EMPLACEMENTS,					64
								STATUS UNKNOWN					65
CU	20-06-15N		075-23-58W					GUANTANAMO NO. 10					66
								1 AAA EMPLACEMENTS, STATUS UNKNOWN					67
CU	20-05-50N		075-23-50W					GUANTANAMO NO. 11					68
								1 AAA EMPLACEMENTS, STATUS UNKNOWN					69
CU	20-06-00N		075-24-00W					GUANTANAMO NO. 12					70
								1 AAA EMPLACEMENTS, STATUS UNKNOWN					71
CU	20-07-04N		075-11-09W					GUANTANAMO NO. 13					72
								1 AAA EMPLACEMENTS, STATUS UNKNOWN					73

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
CU	20-07-37N	075-12-24W						GUANTANAMO NO. 14					74
								1 AAA EMPLACEMENTS,					75
								STATUS UNKNOWN					76
CU	20-06-30N	075-24-20W						GUANTANAMO NO. 15					77
								6 AAA EMPLACEMENTS,					78
								STATUS UNKNOWN					79
CU	20-06-30N	075-23-25W						GUANTANAMO NO. 16					80
								1 AAA EMPLACEMENTS,					81
								STATUS UNKNOWN					82
CU	20-08-50N	075-23-25W						GUANTANAMO NO. 17					83
								AAA EMPLACEMENTS,					84
								STATUS UNKNOWN					85
CU	20-08-50N	075-16-29W						GUANTANAMO NO. 18					86
								1 AAA EMPLACEMENTS,					87
								STATUS UNKNOWN					88
CU	20-05-50N	075-13-10W						GUANTANAMO NO. 2					89
								3 AAA EMPLACEMENTS,					90
								STATUS UNKNOWN					91
CU	20-05-50N	075-33-10W						GUANTANAMO NO. 3					92
								LIGHT AAA (CALIBER	4				93
								UNKNOWN, 57-MM OR					94
								LESS)					95
CU	20-05-51N	075-23-11W						GUANTANAMO NO. 4					96
								1 AAA EMPLACEMENT,					97
								STATUS UNKNOWN					98
CU	20-06-09N	075-23-29W						GUANTANAMO NO. 5					99
								1 AAA EMPLACEMENT,					100
								STATUS UNKNOWN					101
CU	20-06-08N	075-23-28W						GUANTANAMO NO. 6					102
								1 AAA EMPLACEMENT					103
								STATUS UNKNOWN					104
CU	20-05-50N	075-23-29W						GUANTANAMO NO. 7					105
								1 AAA EMPLACEMENT					106
								STATUS UNKNOWN					107
CU	20-06-28N	075-24-00W						GUANTANAMO NO. 8					108
								1 AAA EMPLACEMENT					109
								STATUS UNKNOWN					110

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

NO	CN	AD	COORDINATES	C DESIG	C E T NAME/EQUIPMENT/REMARKS	E STR	C CAPAB	LINE
CU	20-06-20N	075-24-08W			GUANTANAMO NO. 9			111
					4 AAA EMPLACEMENTS,			112
					STATUS UNKNOWN			113
CU	20-15-//N	076-34-//W			GUISA			114
					QUAD. (4 BARREL	56		115
					AA MACHINE			116
					GUN)			117
CU	23-06-0/N	082-26-0/W			HABANA (DEF CAMPO LIBERTAD AFLD)			118
					18 AAA EMPLACEMENTS,			119
					STATUS UNKNOWN			120
CU	23-05-30N	082-16-50W			HABANA (DEF CAMPO LIBERTAD AFLD W)			121
								122
					57-MM WITH RADAR	6		123
CU	23-09-//N	082-22-//W			HABANA (DEF HOTEL NACIONAL)			124
								125
					57-MM WITH RADAR	6		126
CU	23-04-15N	082-20-00W			HABANA NO. 1			127
					57-MM WITH RADAR	6		128
CU	23-04-15N	082-22-15W			HABANA NO. 2			129
					57-MM WITH RADAR	6		130
CU	23-06-20N	082-17-35W			HABANA NO. 3			131
					57-MM WITH RADAR	6		132
CU	23-04-00N	082-27-20W			HABANA NO. 4			133
					57-MM WITH RADAR	6		134
CU	23-05-15N	082-27-45W			HABANA NO. 5			135
					57-MM WITH RADAR	6		136
CU	23-05-17N	082-30-00W			HABANA (DEF SANTA FE)			137
					30-MM TWIN; 6 57-MM	6		138
					WITH RADAR			139
CU	23-03-35N	082-25-05W			HABANA (DEF TOLEDO)			140
					57-MM WITH RADAR	6		141
CU	23-08-25N	082-17-15W			HABANA (DEF VIA BLANCA)			142
					57-MM WITH RADAR	6		143
CU	20-53-0/N	076-14-0/W			HOLGUIN			144
					6 AAA EMPLACEMENTS,			145
					OCCUPIED			146

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

MD CN AD COORDINATES	C DESIG C E	NAME/EQUIPMENT/REMARKS	E STR C CAPAB LINE
CU 22-57-//N 081-13-//W		LAGUNILLAS	147
		QUAD (4 BARREL AA	148
		MACHINE GUN)	149
CU 21-38-//N 081-28-//W		LARGO ISLAND	150
		37-MM AAA	151
CU 20-04-0/N 075-09-0/W		LOS CANOS (DEF LOS	152
		CANOS AFLD)	153
		7 AAA EMPLACEMENTS,	154
		STATUS UNKNOWN	155
CU 21-38-0/N 082-57-0/W		LOS INDIOS (DEF	156
		SIGUANEA AFLD)	157
		6 AAA EMPLACEMENTS,	158
		STATUS UNKNOWN;	159
		QUAD (4 BARREL AA	160
		MACHINE GUN)	161
CU 22-58-0/N 082-18-0/W		MANAGUA (DEF BTRY	162
		CAMP MANAGUA NO. 1)	163
		30-MM TWIN	164
CU 22-57-38N 082-15-50W		MANAGUA (DEF BTRY	165
		CAMP MANAGUA NO. 3)	166
		57-MM WITH RADAR	167
CU 22-57-50N 082-16-35W		MANAGUA (DEF BTRY	168
		CAMP MANAGUA NO. 4)	169
		57-MM AAA WITHOUT	170
		RADAR	171
CU 22-58-03N 082-18-42W		MANAGUA (DEF BTRY	172
		CAMP MANAGUA NO. 2)	173
		57-MM WITH RADAR	174
CU 23-01-25N 082-45-05W		MARIEL	175
		8 AAA EMPLACEMENTS,	176
		STATUS UNKNOWN	177
CU 23-00-50N 082-49-50W		MARIEL (DEF GUNAJAY)	178
		57-MM WITHOUT RADAR;	179
		LIGHT AAA (CALIBER	180
		UNKNOWN, 57-MM OR LESS)	181

CUBAN ANTI-AIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

MD CN AD COORDINATES	C DESIG C E T NAME/EQUIPMENT/REMARKS	E STR C CAPAB LINE
CU 23-00-30N 082-44-30W	MARIEL (DEF SITE EAST)	182
	57-MM WITH RADAR	183
CU 23-04-0/N 081-36-0/W	MATANZAS (DEF MESA AREA)	184
	AAA EMPLACEMENT, STATUS UNKNOWN	185
		186
CU 23-01-0/N 081-33-0/W	MATANZAS BTRY LAS CUEVAS DE BELLAMAR	187
	QUAD (4 BARREL AA MACHINE GUN)	188
		189
		190
CU 21-55-0/N 082-48-0/W	NUEVA GERONA (DEF NORTH)	191
		192
		193
	QUAD (4 BARREL AA MACHINE GUN)	194
		195
CU 21-52-0/N 082-46-0/W	NUEVA GERONA (DEF SOUTH)	196
		197
	QUAD (4 BARREL AA MACHINE GUN)	198
		199
CU 22-25-0/N 083-40-0/W	PINAR DEL RIO	200
	3 AAA EMPLACEMENTS, STATUS UNKNOWN	201
		202
CU 23-02-0/N 082-35-0/W	PLAYA DE BARACOA	203
	LIGHT AAA (CALIBER UNKNOWN, 57-MM OR LESS); 16 AAA EMPLACEMENT, STATUS UNKNOWN	204
		205
		206
		207
		208
CU 23-10-0/N 082-06-0/W	PLAYA DE GUANABO	209
	QUAD (4 BARREL AA MACHINE GUN)	210
		211
CU 22-27-0/N 079-39-0/W	REMEDIOS	212
	8 AAA EMPLACEMENTS, OCCUPIED	213
		214
CU 22-52-0/N 082-31-0/W	SAN ANTONIO DE LOS BANOS	215
		216
	18 LIGHT AAA (CALIBER UNKNOWN, 57-MM OR LESS);	217
	57-MM WITH RADAR	218
		219

CUBAN ANTIAIRCRAFT ARTILLERY ORDER OF BATTLE (CONT'D)

MD	CN	AD	COORDINATES	C	DESIG	C	E	T	NAME/EQUIPMENT/REMARKS	E	STR	C	CAPAB	LINE
'CU	22-40-10N	084-17-15W							SAN CRISTOBAL				220	
									SITE 1				221	
									57-MM AAA WITH	6			222	
									RADAR				223	
CU	22-41-0/N	083-15-0/W							SAN CRISTOBAL				224	
									SITE 2				225	
									57-MM AAA WITH	6			226	
									RADAR; 30-MM	6			227	
									TWIN AAA				228	
CU	22-43-0/N	083-08-0/W							SAN CRISTOBAL				229	
									SITE 3				230	
									57-MM AAA WITH	6			231	
									RADAR; 6 AAA				232	
									EMPLACEMENTS				233	
									STATUS UNKNOWN				234	
CU	22-46-0/N	082-58-0/W							SAN CRISTOBAL				235	
									SITE 4				236	
									57-MM AAA WITH	6			237	
									RADAR; 6 AAA				238	
									EMPLACEMENTS				239	
									STATUS UNKNOWN				240	
CU	20-37-0/N	076-09-0/W							SAN GERMAN				241	
									57-MM WITH RADAR	11			242	
CU	22-56-0/N	082-11-0/W							SAN JOSE DE LAS LAJAS				243	
									AAA EMPLACEMENT,				244	
									UNOCCUPIED				245	
CU	22-06-0/N	084-09-0/W							SAN JULIAN				246	
									30-MM TWIN AAA	27			247	
CU	22-04-0/N	084-09-0/W							SAN JULIAN ASIEN TO				248	
									VIEJO				249	
									QUAD (4 BARREL AA	6			250	
									MACHINE GUN)				251	
CU	22-29-0/N	079-55-0/W							SANTA CLARA (DEF				252	
									SANTA CLARA AFLD)				253	
									30-MM TWIN;	8			254	
									QUAD (4 BARREL AA	3			255	
									MACHINE GUNS)				256	

				SANTIAGO DE CUBA		261
				QUAD (4 BARREL AA		262
				MACHINE GUN,		263
				SANTIAGO DE CUBA		264
				AAA DEF BTRY		265
				LIGHT AAA (CALIBER	30	266
				UNKNOWN, 57-MM OR		267
				LESS)		268
CU	20-02-13N 075-40-35W			SANTIAGO DE CUBA		269
				AAA DEF BTRY 1		270
				7 AAA EMPLACEMENT,		271
				STATUS UNKNOWN		272
CU	23-03-0/N 082-06-0/V			TAPASTE AAA BTRY		273
				MIRADOR DE LA HABANA		274
				QUAD (4 BARREL AA	2	275
				MACHINE GUN)		276
CU	23-02-0/N 082-06-0/W			TAPASTE (DEF CUEVAS		277
				DEL CURA)		278
				QUAD (4 BARREL AA	6	279
				MACHINE GUN)		280
CU	23-10-0/N 082-15-0/W			TARARA		281
				6 AAA EMPLACEMENTS,		282
				STATUS UNKNOWN		283
CU	21-48-//N 079-59-//W			TRINIDAD		284
				QUAD (4 BARREL AA	6	285
				MACHINE GUN)		286